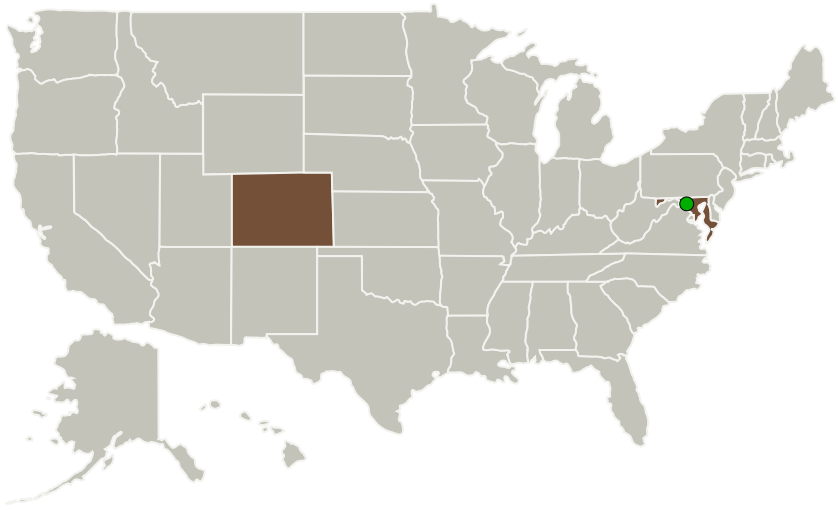
Electro-Optic Laser Scanners for Space-Based Lidar, Phase II

Completed Technology Project (2011 - 2013)

Project Introduction

The purpose of this phase II SBIR is to design and build new non-mechanical, electro-optic (EO) laser scanners that will be suitable for space based laser ranging, with a specific focus on the upcoming Lidar Surface Topography (LIST) mission. Even though the applications for EO laser scanning are extensive and pervasive, replacing opto-mechanics has been a historically intractable problem. Vescent Photonics has developed a proprietary electro-optic architecture that enables, for the first time, very wide field-of-regard (270 degrees of scanning demonstrated) and simple EO laser scanners. In our phase I work we demonstrated that these new EO scanners can be designed/adapted to meet the unique performance requirements for satellite based laser sensors. In phase II we will design, build and deliver a full EO scanner system, including a mated optical amplifier that will meet the LIST performance requirements. This phase II program will advance the TRL from 4 to 5-6.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Vescent Photonics, Inc.	Lead Organization	Industry	Arvada, Colorado
Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland

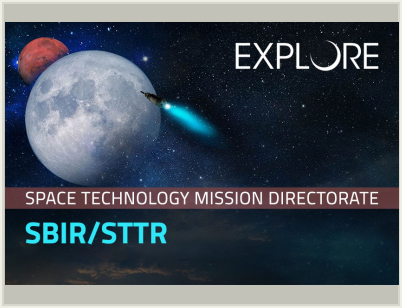


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Table of Contents

Electro-Optic Laser Scanners for Space-Based Lidar, Phase II

Completed Technology Project (2011 - 2013)

Primary U.S. Work Locations	
Colorado	Maryland

Project Transitions

June 2011: Project Start

May 2013: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/138830)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Vescent Photonics, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Scott R Davis

Co-Investigator:

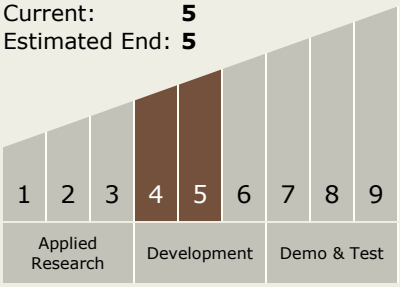
Scott Davis

Electro-Optic Laser Scanners for Space-Based Lidar, Phase II

Completed Technology Project (2011 - 2013)

Technology Maturity (TRL)

Start: **4**
Current: **5**
Estimated End: **5**



Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.3 Optical Components

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System